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(पहला पुनरीक्षण)

Indian Standard

MOULDS SUITABLE FOR CAST RESIN-BASED JOINTS FOR CABLES FOR VOLTAGES UP TO AND INCLUDING 1 100 V — SPECIFICATION

(First Revision)

UDC 621·744 : 006·78 : 621·315·67

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

April 1992 **Price Group 3**

Power Cables Sectional Committee, ETD 9

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by Power Cables Sectional Committee had been approved by the Electrotechnical Division Council.

This standard was first published in 1980. The revision has been undertaken to take into account the experience gained since its publication, and to include Y-type joints.

Development of cast resin-based joints has been undertaken by several manufacturers in the country. A large variety of systems exist utilizing different methods for jointing and using different types of resins, fillers and hardeners. In order to ensure adequate space for the making of joints on cables, it is necessary that the moulds should have definite minimum dimensions such as to ensure adequate clearances and proper bending of the cables cores without undue strain.

This standard has been prepared to rationalize the types and sizes of moulds for cast resin based joints suitable for thermoplastic, paper insulated cables and elastomeric cables.

The object of this standard is to specify envelope dimensions of the joints casting moulds. Only essential dimensions are shown in the drawing. The manufacturer is free to adopt all other dimensions as also the general shape of the mould.

This standard does not cover the actual jointing methods or the specifications of materials and components, such as plastic moulds, casting resin system, etc, which are used in jointing. However, moulds dimensions are worked out on the basis of married joints only and for uncut main cable.

As far as possible, various sizes of cables are covered under single type of mould. Table 3 regarding selection of moulds is for guidance of users only.

Materials used for actual jointing and the various systems being developed for the insulation of conductors shall be dealt with under a separate standard.

The minimum thickness of mould has not been specified since it is possible to adopt ribbed construction to get more strength of the mould. Also the strength to the joints is given by the cast resin rather than the mould.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

MOULDS SUITABLE FOR CAST RESIN-BASED JOINTS FOR CABLES FOR VOLTAGES UP TO AND INCLUDING 1 100 V — SPECIFICATION

(First Revision)

1 SCOPE

1.1 This standard specifies dimensions for moulds of cast resin-based tee-joints and on cables manufactured to IS 692 : 1973, IS 694 : 1990, IS 1554 (Part 1) : 1988, IS 4288 : 1988, IS 7098 (Part 1) : 1988 and IS 9968 (Part 1) : 1988 for voltages up to and including 1 100 volts and maximum conductor size of 300 mm^2 for 1-, 2-, 3½- and 4-core cables.

1.2 This standard also specifies the markings to be given and makes a reference to the materials for such moulds.

2 REFERENCE STANDARDS

The standards listed in Annex A are referred in this standard.

3 MATERIALS

3.1 Plastic Mould

The plastic mould shall comprise two halves formed from plastic sheet, such as, polystyrene, polyethylene or any other suitable plastic materials.

3.1.1 Subject to mutual agreement between the user and the supplier, alternative materials, such as resin bonded fibre-glass laminate, reinforced synthetic polymer or elastomer coated sheet metal may also be used.

4 DIMENSIONS

4.1 The minimum dimensions of the moulds for 'Tee' type joints (*see* Fig. 1) shall be as given in Table 1.

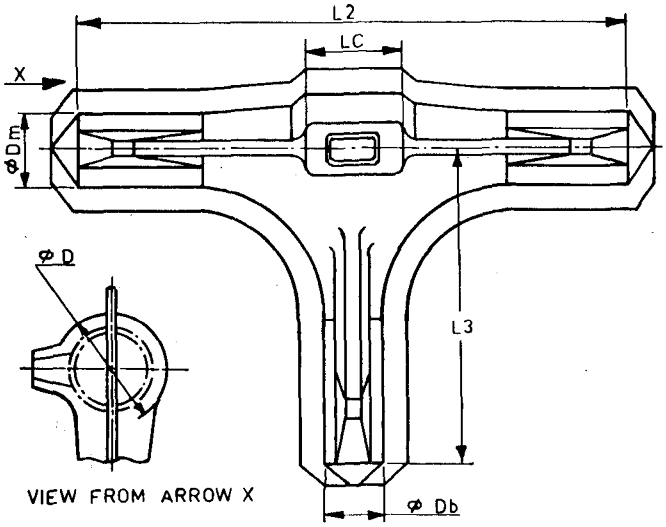

FIG. 1 TEE TYPE JOINT

Table 1 Minimum Dimensions of Moulds for ·Tee' Joints

(*Clauses* 4.1, 6 *and* 7.4)

Mould Designation	I_a	I_c	I_s	ϕD	$\phi D\text{m}$	ϕD_b
IT-1	270	45	155	68	45	45
IT-2	350	70	200	87	50	48
IT-3	440	84	230	98	52	52
IT-4	475	92	250	106	50	59
IT-5	515	115	235	107	60	50
IT-6	560	135	280	115	60	60
IT-7	535	70	215	108	67	50
IT-8	610	150	300	124	67	67
IT-9	615	130	290	122	70	52
IT-10	645	160	330	130	70	70
IT-11	632	70	220	122	80	50
IT-12	700	134	290	125	80	60
IT-13	755	195	381	150	80	80
IT-14	665	70	220	122	82	50
IT-15	775	190	380	150	82	67
IT-16	710	70	225	125	82	82
IT-17	775	134	305	139	87	50
IT-18	780	160	340	145	87	67
IT-19	880	250	407	160	87	87

4.2 Dimesions of moulds for 'Y' type joints (*see* Fig. 2) shall be as given in Table 2.

5 SELECTION

For each mould designation, Table 2 gives the type and size of the cables for Y-type joints. The user may select the mould for Tee type joints suitable for his application from Table 3.

6 MARKING

One part of the mould shall be marked by embossing or indenting the following:

a) Manufacturer's name and/or trade-name; and
b) Type number in accordance with Table 1 and/or 2 of this standard.

7 TESTS

7.1 Classification of Tests

7.1.1 *Type Tests*

The following shall constitute type tests:

a) Marking (**7.2**);
b) Workmanship (**7.3**), and
c) Checking of dimensions (**7.4**).

7.1.2 *Routine Tests*

The following shall be the routine tests:

a) Marking (**7.2**), and
b) Workmanship (**7.3**).

7.2 Marking

The moulds shall be checked for conformity to **6**.

7.3 Workmaship

The moulds shall be checked for conformity to **6**.

7.4 Checking of Dimensions

The moulds shall be checked for conformity to dimensions given in Table 1 for Tee-joints and Table 2 for Y-joints.

Table 2 Mould Dimensions for 'Y' Type Joints

(*Clauses* 4.2, 5, 6 *and* 7.4)

All dimensions in millimetres.

KIT No.	3½/4 MAIN	3½/4 BRANCH	3 CORE MAIN	3 CORE BRANCH	2 CORE MAIN	2 CORE BRANCH	1 CORE MAIN	1 CORE BRANCH	L	L$_1$	D φ	D$_1$ φ	D$_2$ φ
		CABLE	SIZE	(mm^2)	—	—	—	—					
YT$_{19}$	300	185 to 300	—	—	—	—	—	—	880	250	87	87	160
YT$_{18}$	300	70 to 150	—	—	—	—	—	—	780	160	87	67	145
YT$_{17}$	300	Up to 50	—	—	—	—	—	—	776	134	87	50	139
YT$_{16}$	240	185 225 240	300	225 240 300	—	—	—	—	710	70	82	82	125
YT$_{15}$	240	70 to 150	300	95 to 185	—	—	—	—	775	190	82	67	150
YT$_{14}$	240	Up to 50	300	Up to 70	—	—	—	—	665	70	82	50	122
YT$_{13}$	225	150 185 225	240	185 225 240	300	240 300	—	—	755	192	80	80	150
YT$_{12}$	225	70/95/120	240	95/120/150	300	185/225	—	—	700	134	80	60	125
YT$_{11}$	225	Up to 50	240	Up to 70	300	Up to 150	—	—	632	70	80	50	122
YT$_{10}$	185	90 to 185	225	125 to 225	240	150 to 240	—	—	645	160	70	70	130
YT$_9$	185	Up to 70	225	Up to 95	240	Up to 120	—	—	615	130	70	52	122
YT$_8$	150	70 to 150	185	95 to 185	225	120 to 225	—	—	610	150	67	67	124
YT$_7$	150	Up to 50	185	Up to 70	225	Up to 95	—	—	535	70	67	50	108
YT$_6$	120	70/95/120	150	95 to 150	185	95 to 185	—	—	560	135	60	60	115
YT$_5$	120	Up to 50	150	Up to 70	185	Up to 70	—	—	515	115	60	50	107
YT$_4$	95 95	95/70 16/25 35/50	120 120	16/25/35/50 70/35/120	120 120 150	Up to 50 70/95 120/150	300	Up to 300	475	92	50	50	106
YT$_3$	50 70 70	50/35 16/25/35 50/70	95 95	16/25/35 50/70/95	95 95	Up to 35 50/70/95	225 240	Up to 240	440	84	52	52	98
YT$_2$	35 50	16/25/35 10/16/25	50 70	16/25/35 70/50	50 70	Up to 50 Up to 70	120 150 185	Up to 185	350	70	50	48	87
YT$_1$	10 16 25	10 16 25/16	25 35	16/25 16/25/35	Up to 35	Up to 35	Up to 95	Up to 95	270	45	45	45	68

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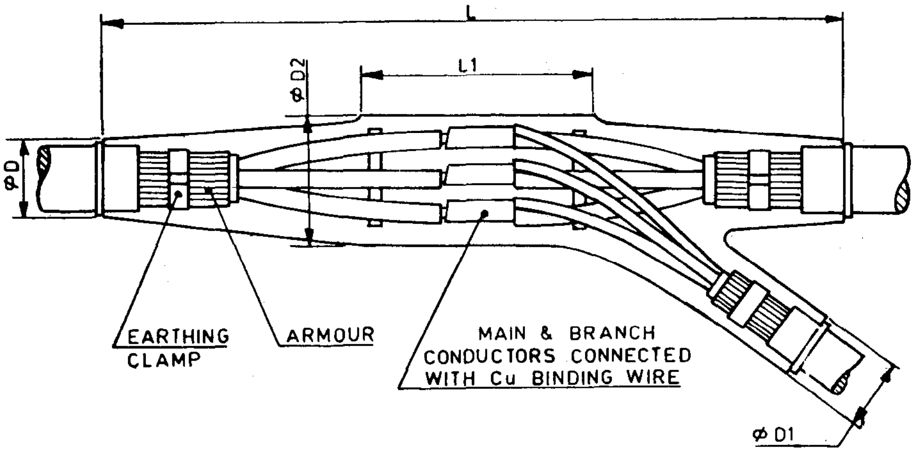

FIG. 2 'Y' TYPE JOINT

Table 3 Selection of Moulds for Tee Joints

(*Foreword* and *Clause* 5)

Mould Designation	3½/4 Core		3 Core		2 Core		1 Core	
	Main	Branch	Main	Branch	Main	Branch	Main	Branch
IT-1	10	10	25	16/25	Up to 35	Up to 35	Up to 95	Up to 95
	16	16	35	16/25/35				
	25	16/26						
IT-2	35	16/25/35	50	16/25/35	50	Up to 50	120/50/185	Up to 185
	50	10/16/25	70	50/70	70	Up to 70		
IT-3	50	35/50	95	16/25/35	95	Up to 35	225/240	Up to 240
	70	16/25/35	95	50/70/95	95	50/70/95		
IT-4	95	70/95	120	16/25/35/50	120/150	Up to 50	300	Up to 300
	95	16/25/35/50	120	70/95/120	120/150	70/95/120/150	—	—
IT-5	120	16/25/35/50	150	16/25/35/50/70	185	Up to 70	—	—
IT-6	120	70/95/120	150	95/120/150	185	95/120/150/185	—	—
IT-7	150	16/25/35/50	185	16/25/35/50/70	225	Up to 95	—	—
IT-8	150	70/95/120/150	185	95/120/150/185	225	120/150/185/225	—	—
IT-9	185	16/25/35/50/70	225	16/25/35/50/70/95	240	Up to 120	—	—
IT-10	185	95/120/150/185	225	120/150/185/225	240	150/185/225/240	—	—
IT-11	225	16/25/35/50	240	16/25/35/50/70	300	Up to 150	—	—
IT-12	225	70/95/120	240	95/120/150	300	185/225	—	—
IT-13	225	150/185/225	240	185/225/240	300	240/300	—	—
IT-14	240	16/25/35/50	300	16/25/35/50/70	—	—	—	—
IT-15	240	70/95/120/150	300	95/120/150/185	—	—	—	—
IT-17	300	16/25/35/50	—	—	—	—	—	—
IT-18	300	70/95/120/150	—	—	—	—	—	—
IT-19	300	185/225/240/300	—	—	—	—	—	—

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
692 : 1973	Paper insulated lead-sheathed cables for electricity supply (*second revision*)
694 : 1990	PVC insulated cables for working voltages up to and including 1 100 V (*third revision*)
1554 (Part 1) : 1988	PVC insulated (heavy duty) electric cables: Part 1 For working voltages up to and including 1 100 V (*third revision*)
4288 : 1988	PVC insulated (heavy duty) electric cables with solid aluminium conductors for voltages up to and including 1 100 V (*second revision*)
7098 (Part 1) : 1988	Crosslinked polyethylene insulated PVC sheathed cables: Part 1 For working voltages up to and including 1 100 V (*first revision*)
9968 (Part 1) : 1988	Elastomer insulated cables: Part 1 For working voltages up to and including 1 100 V (*first revision*)

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